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NOTES FROM PACIFIC COAST OBSERVATORIES

SPECTROSCOPIC NOTES

Two Stars with Great Radial Velocities

The radial velocities of the following stars of large proper motion are exceptionally high:

	Mag.	Spectrum	μ	ψ	V
Lal. 23995	8.2	F ₂	0".89	228°	+144 km.
Lal. 27274	8.3	F ₄	0".80	159	+159 km.

The magnitudes, spectral types and proper motions are strikingly similar, but the direction of proper motion differs by about 70°. The spectrograms were taken with low dispersion.

A Cepheid Variable With Bright Hydrogen Lines

The Cepheid variable W *Serpentis* ($\alpha = 18^h 4^m$; $\delta = -15^\circ 34'$) has been found to have doubly reversed bright hydrogen lines with the central dark component nearly symmetrically placed. H β is exceptionally prominent. The star varies in magnitude from 8.5 to 9.6 and has a period of 14 days. So far as we know this is the first variable of this type found to have bright lines.

The Algol Variable TT Aurigae

Observations of the spectrum of this star show the presence of two components with a maximum relative velocity of over 400 km. Both stars show the helium lines but with unequal intensity. The period of variation is 1.33 days and the range in magnitude from 8.5 to 9.2

The Spectrum of Nova Geminorum No. 2 of 1912

The identification of a large number of absorption lines in the spectrum of *Nova Aquilae* No. 3 with lines due to iron, titanium, chromium and other elements led us to re-examine the results for *Nova Geminorum* of 1912. The Mount Wilson observations of this star, which, owing to unfavorable weather, began nine days after its discovery, showed the presence of a considerable number of wide and very diffuse absorption lines. These, as in the case of *Nova Aquilae*, soon disappeared. A comparison of wave-lengths shows that many of these lines correspond to similar lines in *Nova Aquilae* but with a displacement only one-half as great. Thus in the region λ 4500 to λ 4600 there are thirteen lines which may

be identified with certainty in the two stars. Of these seven are enhanced lines of iron, four of titanium, one of chromium, and one the strong arc line λ 4529 of iron. The average displacement of these lines is -11.8 angstroms in *Nova Geminorum*, and -23.6 in *Nova Aquilae* on June 12th.

About 40 lines common to the spectra of these two stars have been identified in the region between $H\delta$ and $H\beta$, a large proportion of them being enhanced lines.

The Radial Velocity of Nova Aquilae No. 3

The measurement of the narrow absorption lines H and K upon 14 spectrograms, and of D_1 and D_2 upon 5 spectrograms, has yielded a value of -15 km. for the radial velocity of *Nova Aquilae*.

W. S. ADAMS.

A. H. JOY.

THE PARALLAX OF THE ANDROMEDA NEBULA

To derive the parallax of the great spiral nebula in *Andromeda* sixteen exposures ranging from 20 to 35 minutes were taken at the 80-foot focus of the 60-inch reflector. The center of the nebula shows a central condensation $3''$ to $4''$ in diameter, surrounded by a faint elliptical nebulosity; the image is quite measurable, but not with the same accuracy as the surrounding stars. For comparison purposes nine stars were used which seemed not to be connected with the nebula.

The result is:

$$\pi_{\text{rel.}} = +0.004 \pm 0.005.$$

This agrees well with the result by Barnard from micrometrical measures with the 40-inch Yerkes refractor, which gave no evidence of a measurable parallax.

Two other determinations are known, one by Franz and one by Bohlin. Franz measured the Nova in the nebula, which appeared in 1885, using the heliometer at Königsberg; his result is $-0''.11 \pm 0''.14$. As the magnitude of the Nova during his observations changed from $8^m.4$ to $11^m.5$ and the interval was only two months, after which time the star was too faint for observation, little weight can be attached to this result. Bohlin's measures were derived from 62 plates, taken with the 6-inch Steinheil objective at Stockholm; the exposures range from 30 to 83 minutes; the diameter of the central part was about $6''.5$; his result was $+0''.171 \pm 0''.051$.

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